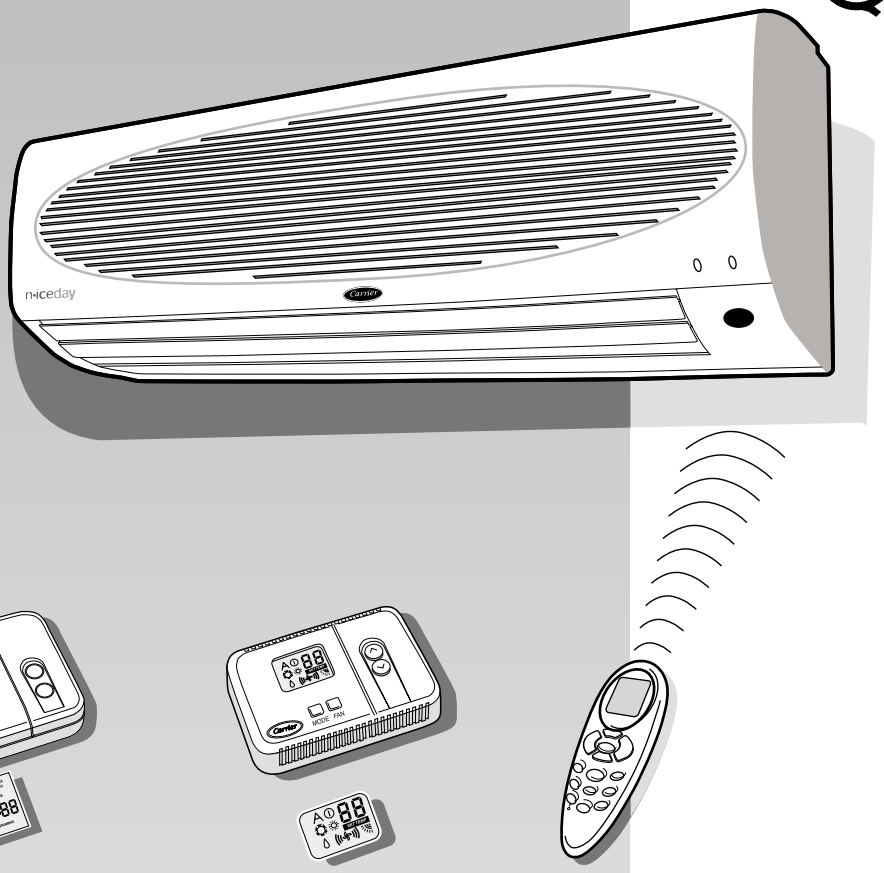
Carrier

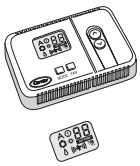
# 42PQV XPOWER INVERTER



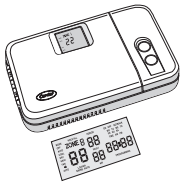

## INSTALLATION MANUAL

# 42PQV
# Split system “Hi-Wall” indoor unit

**IR Remote Control**



**“Room Controller”**



**“Zone Manager”**

**The unit can be used with infrared Remote Control, with the Carrier “Room Controller” or “Zone Manager”.**
**Infrared control installation instructions are contained in the unit instruction and maintenance manual.**
**Remote controls intallation instructions are contained in the relevant manuals, supplied with the remote controls.**

**The operation and maintenance instructions for the indoor unit and the installation instructions for the indoor and the outdoor unit are given in the manuals for each unit. These are supplied with the unit.**

ENGLISH

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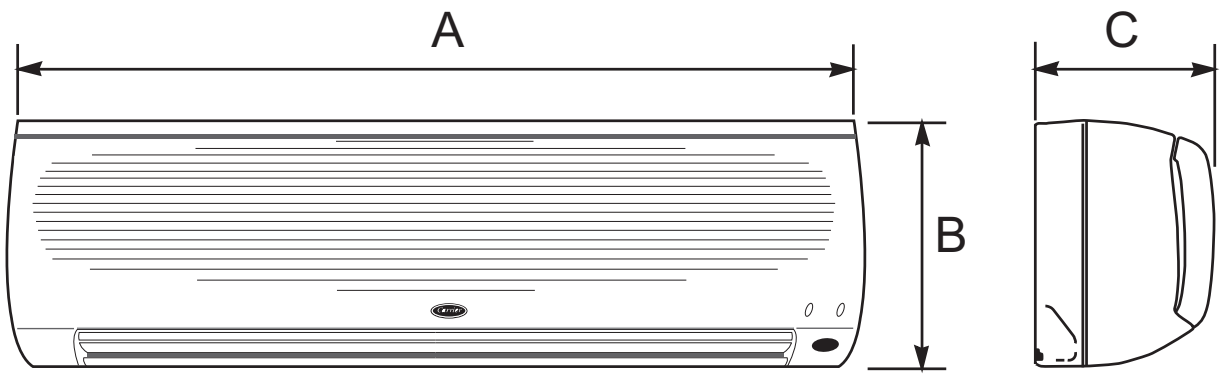
| **Indoor unit item number 220÷240V-50Hz R410A** |
|---|
| **42PQV050** |
| **42PQV080** |

# 42PQV

## Dimensions and weight




| Mod. | | 42PQV050 / 42PQV080 |
|---|---|---|
| **A** | mm | 1080 |
| **B** | mm | 285 |
| **C** | mm | 185 |
| kg | kg | 14 |

| ELECTRIC POWER INPUT | | |
|---|---|---|
| **Heat pump** | | |
| | Cooling **W** | Heating **W** |
| **42PQV050** | 53 | 53 |
| **42PQV080** | 53 | 53 |

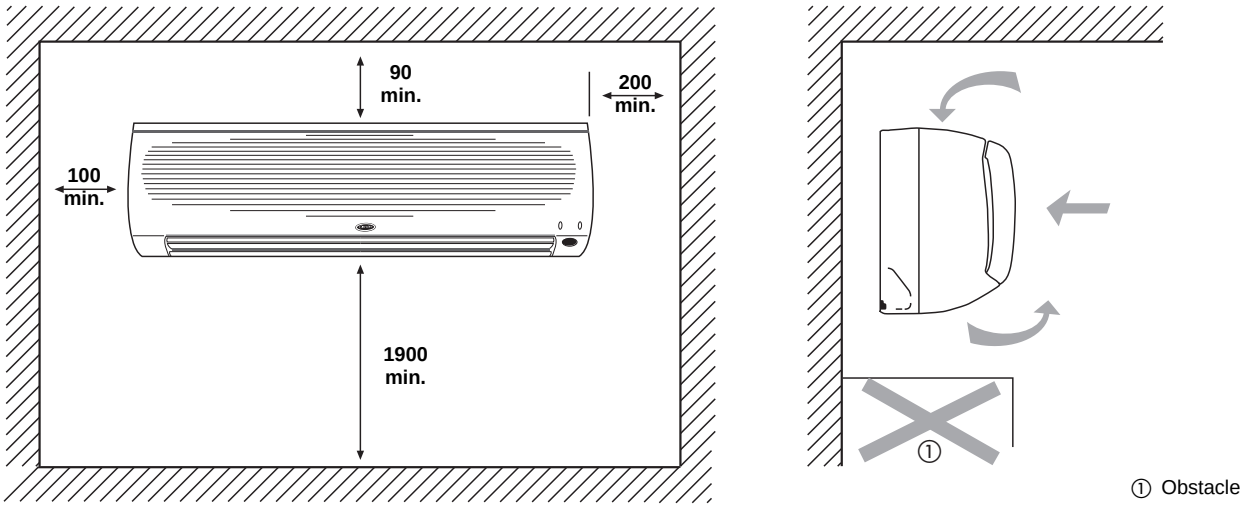
### Table I: Nominal data

- **Unit is not suitable for operation in laundry premises.**
- For sizing of power supply wires and delay type fuses, refer to the outdoor unit installation instructions.

### Table II: Operating limits

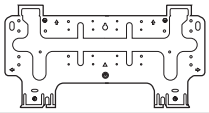
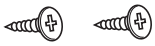
| | | |
|---|---|---|
| **Cooling/Heating** | Refer to outdoor unit installation manual. | |
| **Mains power supply** | Nominal single-phase voltage<br>Operating voltage limits | 220÷240V ~ 50Hz<br>**min. 198V – max. 264V** |

## Minimum clearances (mm)




## Table III: Material supplied

The following installation accessories are supplied with unit. Use them as required.

| Name and shape | Q.ty | Use |
|---|---|---|
| Wall hanging bracket  | 1 | For indoor unit installation |
| Screws 4xL10  | 2 | For fixing unit and hanging bracket |
| Screws anchors and screws 6xL25 <br>Washers Ø 12 | 4 + 4 + 4 | For wall hanging bracket installation |

## Table IV: Accessories

| Description | Part number | 42PQV | |
|---|---|---|---|
| | | 050 | 080 |
| Photocatalytic filter & Electrostatic filter | 42PHW9103 | ● | ● |

### The following field-supplied items are required to complete the installation.

| Name | Specification |
|---|---|
| Connection pipe | 42PQV050:<br>Ø (1/2”) 12,70 mm (Gas) / Ø (1/4”) 6,35 mm (Liquid) |
| | 42PQV080<br>Ø (5/8”) 15,87 mm (Gas) / Ø (3/8”) 9,52 mm (Liquid) |
| Wall sleeve | |
| Wall cap | |
| Finishing tape | PVC film |
| Fastening tape | |
| Pipe insulation | |
| Drain hose | I.D. 16-17 mm |
| Sealer putty | |
| - Power supply cable | H07RN-F or higher |
| - Electrical connecting cable between indoor and outdoor unit | Cable type: A07 RN-F, synthetic rubber insulation with Neoprene coating according to EN (IEC) 60335-2-40 standards. |

# General information

## Unit installation

**Read this instruction manual thoroughly before starting the installation.**

- **This unit complies with low-voltage (EEC/73/23) and electro-magnetic compatibility (EEC/89/336) directives.**
- The installation must be carried out by a qualified installer.
- Follow all current national safety code requirements.
  In particular ensure that a properly sized and connected ground wire is in place.
- Check that voltage and frequency of the mains power supply are those required for the unit to be installed; the available power must be adequate to operate any other possible appliances connected to the same line.
  Also ensure that national safety code requirements have been followed for the mains supply circuit.
- Connect indoor and outdoor units with field-supplied copper pipes by means of flare connections. Use insulated seamless refrigeration grade pipe only, (Cu DHP type according to ISO1337), degreased and deoxidized, suitable for operating pressures of at least 4200 kPa and for burst pressure of at least 20700 kPa.
  Under no circumstances must sanitary type copper pipe be used.
- Where necessary, use field-supplied 16 -17 mm I.D. PVC pipe of appropriate length and with the correct thermal insulation for the condensate drain extension.
- After the installation thoroughly test system operation and explain all system functions to the owner.
- Leave this manual with the owner for consultation during future periodic maintenance.
- Use this unit only for factory approved applications: **the unit cannot be used in laundry or steam pressing premises**.

**IMPORTANT:**
**During the unit installation make first refrigerant connections and then electrical connections. If unit is uninstalled first disconnect electrical cables, then refrigerant connections.**

**WARNING:**
**Disconnect the mains power supply switch before servicing the system or handling any internal parts of the unit**.

- Do not open the remote control to avoid possible damage.
  In case of malfunctioning contact a qualified service engineer.
- Control batteries contain polluting elements.
  When exhausted they must be disposed of according to local requirements.
- This installation manual describes the installation procedures of the indoor unit of a residential split system consisting of two units manufactured by Carrier.
  Consult the factory or a qualified system engineer prior to connecting this unit to any other manufacturer's outdoor unit.
  Coupling units which have different control systems, may cause irreversible damage and void the warranty protection.
  The manufacturer declines any liability for system malfunction resulting from unapproved coupling.
- The manufacturer declines any liability for damage resulting from modifications or errors in the electrical or refrigerant connections.
- Failure to observe the installation instructions or use of the unit under conditions other than those indicated in Table II (operating limits), will immediately void the unit warranty.
- Failure to observe electric safety codes may cause a fire hazard in case of short circuits.
- Inspect equipment for damage due to improper transportation or handling: file an immediate claim with the shipping company.
  Do not install or use damaged units.
- In case of any malfunctioning turn the unit off, disconnect the mains power supply and contact a qualified service engineer.
- Maintenance of the refrigerant circuit must only be carried out by qualified personnel.
- **All of the manufacturing and packaging materials used for your new appliance are compatible with the environment and can be recycled.**
- Dispose of the packaging material in accordance with local requirements.
- This equipment contains refrigerant that must be disposed of in the proper manner.
  When disposing of the unit after its operational life, remove it carefully.
  The unit must then be delivered to an appropriate disposal centre or to the original equipment dealer for proper environmentally compatible disposal.

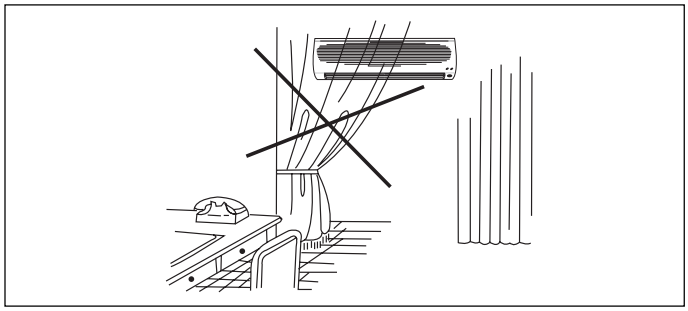
## Choosing the installation site

**Positions to avoid:**

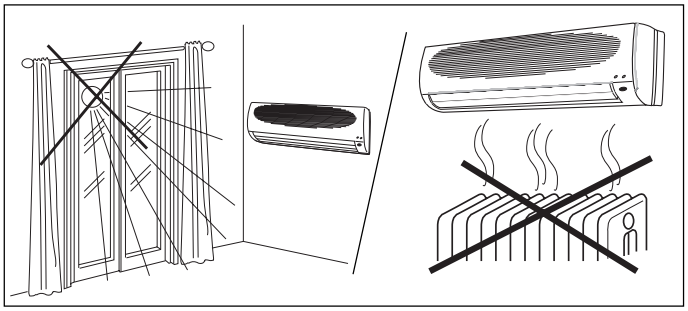
- Exposed to direct sun.
- Too close to heat sources.
- On humid walls or positions with water hazard, e.g. laundry premises.
- Where curtains or furniture may obstruct free air circulation.

## Recommendations:

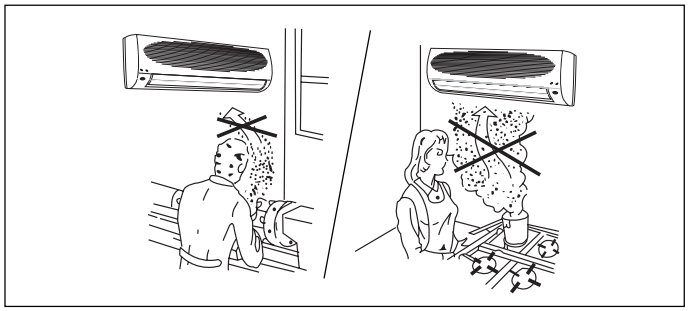
- Install the unit at more than 1,9 mt from the floor.
- Choose an area free from obstructions which may cause irregular air distribution and/or return.
- Check that the wall surface is flat enough to allow easy and safe installation.
  The wall structure should be strong enough to carry the unit weight and avoid deformation, rupture or vibration during operation.
- Consider using an area where installation is easy.
- Choose a position that allows for the clearances required (see drawing).
- Look for a position in the room which assures the best possible air distribution.
- Install unit in a position where condensate can easily be piped to an appropriate drain.



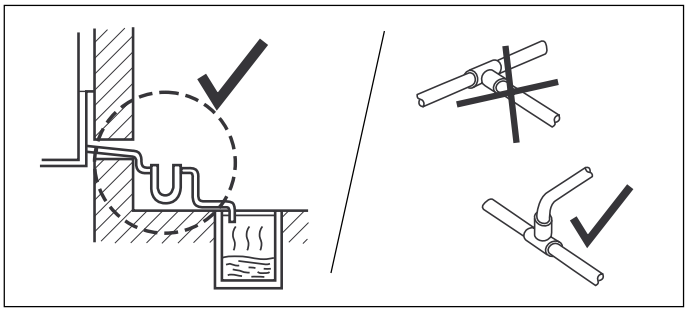
Any obstruction of the unit air outlet or return.



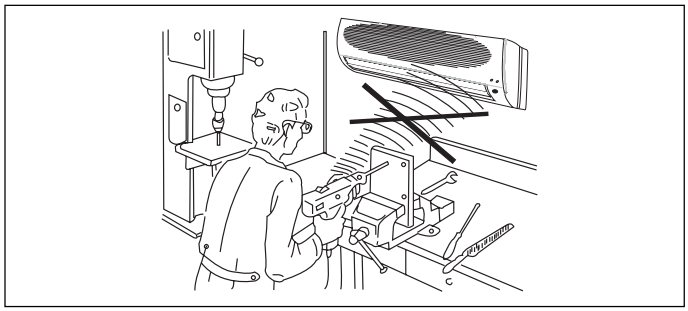
Exposure to direct sunshine, when unit is operating in cooling mode; always use shutters or shades.
Positions too close to heating sources which may damage the unit.



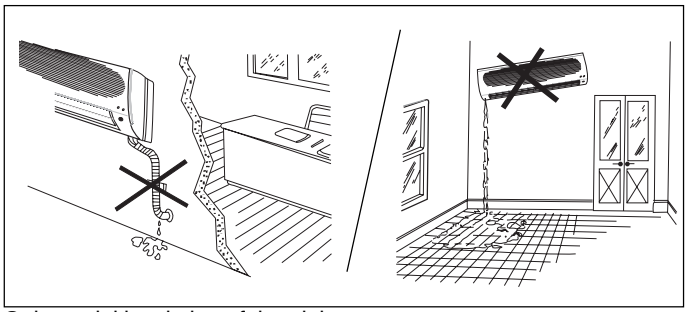
Exposure to oil vapours.



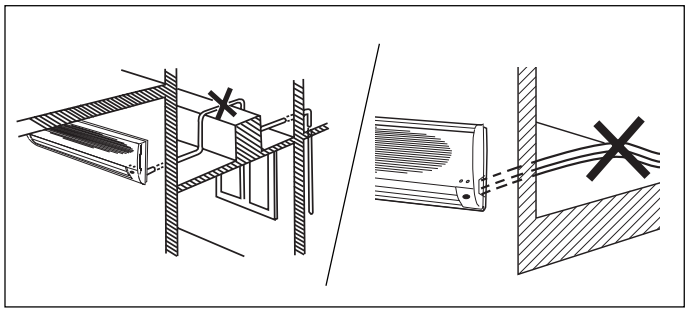
Connecting condensate piping to sewage system drain without appropriate trap. Trap height must be calculated according to the unit discharge head in order to allow sufficient and continuous water evacuation.



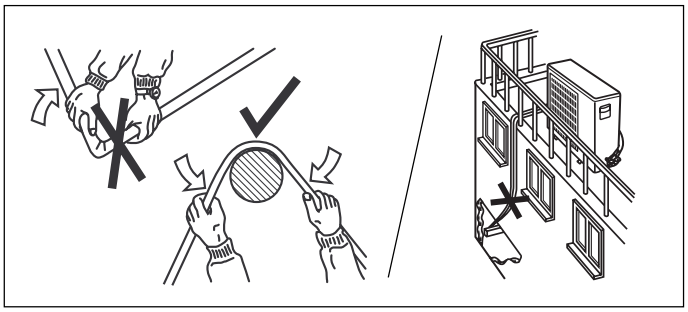
Installation in areas with high-frequency waves.



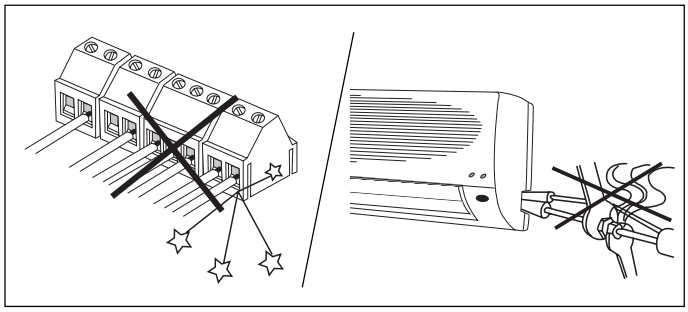
Only partial insulation of the piping.
Installation not correctly leveled which will cause condensate dripping.



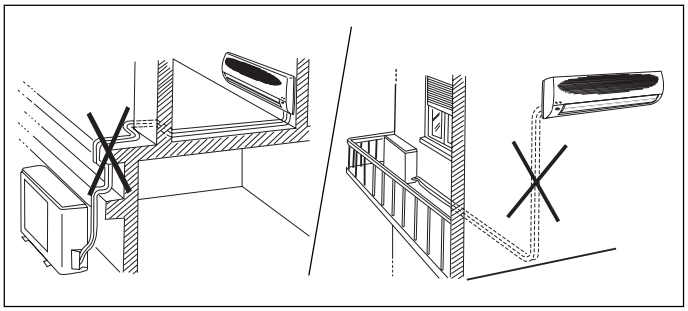
Any rise in the condensate drain piping.
Horizontal condensate drain piping with less than 2% slope.



Flattening or kinking the refrigerant pipes or condensate pipes.
Excessive height difference between outdoor and indoor units (see installation manual of outdoor unit).

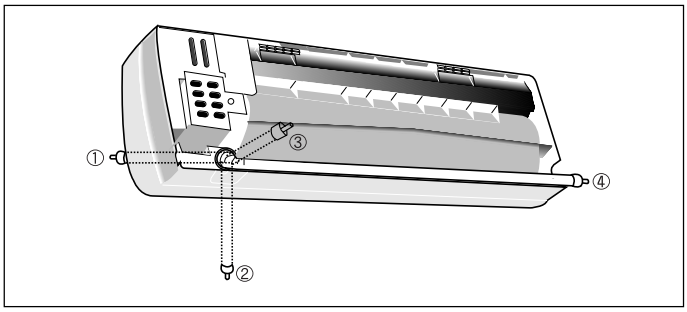


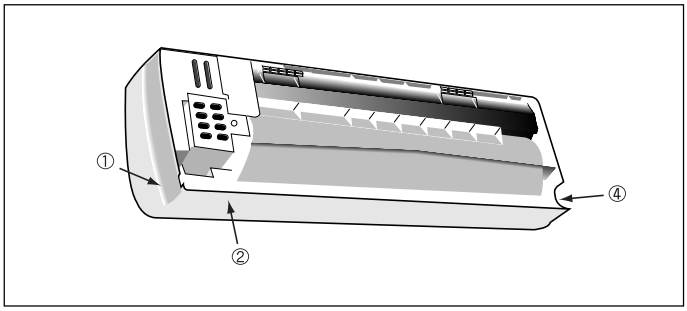
Slack on electrical connections.
Disconnecting refrigerant connections after installation: this will cause refrigerant leaks.



Unnecessary turns and bends in interconnecting tubing.
Excessive interconnecting tube length (see installation manual of outdoor unit).

• The piping can be connected in the four ways indicated by ①, ②, ③ and ④.
When the piping is connected to points ①, ② or ④, remove the knock-out either at the side or at the bottom of the unit.

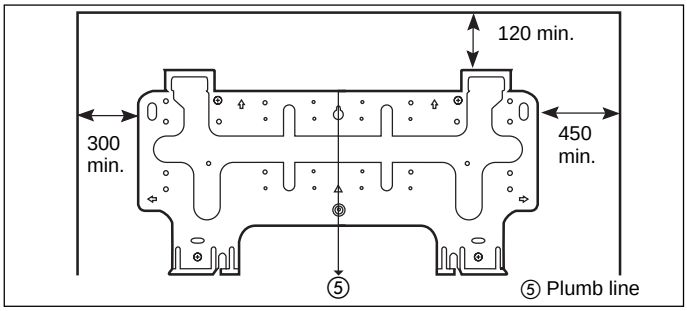


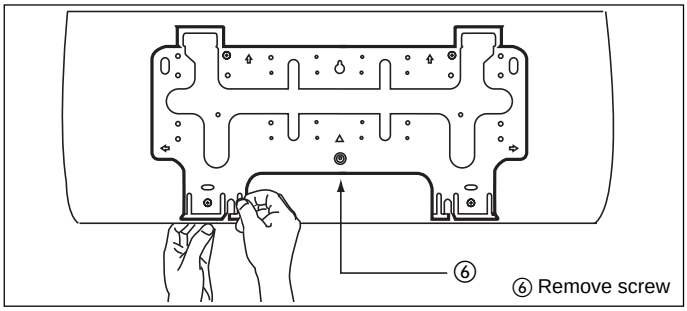




**IMPORTANT NOTE:**
**This unit has no refrigerant expansion device.**

## Installing the wall hanging bracket

• Install the wall hanging bracket so that it is level. Use a plumb line if necessary.
• Be sure to leave the clearance spaces. (Refer to page 3).
• If the wall hanging bracket is not level, water may drip onto the floor.
• Install the wall hanging bracket with a fixing that is strong enough to withstand the weight of the unit.



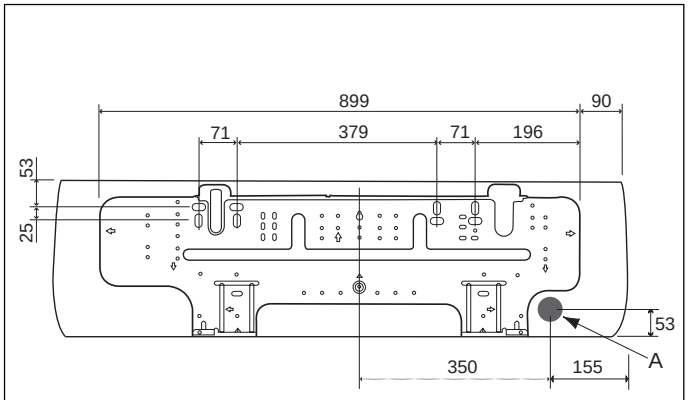




• Before installing the wall hanging bracket, remove it from the unit by pushing at the indicated parts at the bottom of the body.
• Fasten the wall hanging bracket to the wall with 4 or more screw anchors through the holes near the outer edge of the bracket.
• Install the wall hanging bracket so that there is no gap between the bracket and the wall.
• Check that the wall hanging bracket does not move.
This can cause noise during operation.
• If the unit is removed from the wall hanging bracket after installing it onto the wall, remove it by pushing up the indicated MARKS ( ▲ ) at the bottom of the body.
(Refer to page 7).

## Marking the wall penetration for the connection piping

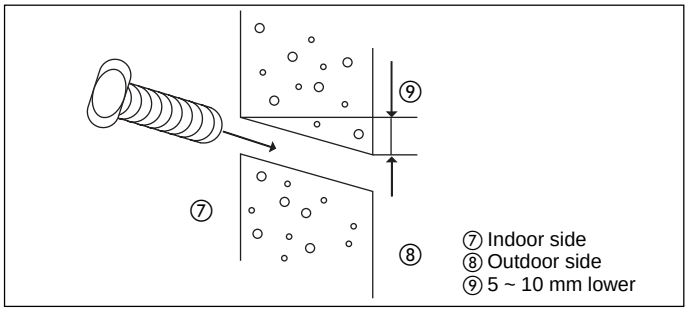
**Rear piping**

• It is best for the piping to go through the wall behind the unit, so that the unit hides the pipes.
• For this method of installation, make a 65 mm diameter hole in the wall at point **A**.




**42PQV050 - 42PQV080**

• Drill a 65 mm diameter hole at a slope so that the outside end is lower (5 - 10 mm) than the inside end.
This will ensure good drainage.
• Cut the wall sleeve to match the wall thickness and pass the pipe through the hole.

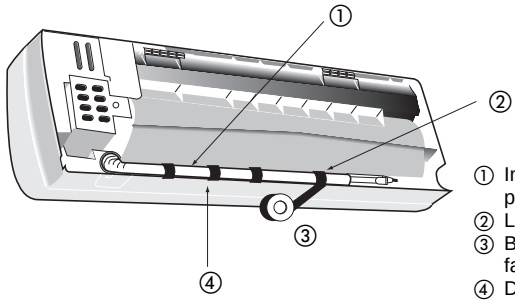



**Side or bottom piping**

• Remove the knock-out in the unit and pass the pipes through the wall.
• The pipe should slope downward and away from the unit to ensure good drainage.

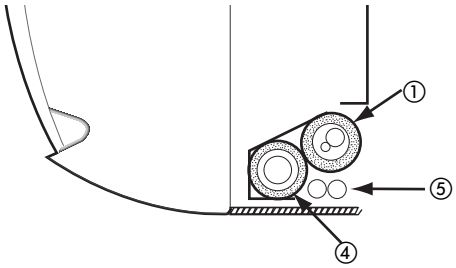
## Routing the drain hose and refrigerant piping

- Tie together the refrigerant pipe, the drain hose, and the electrical connection cord.
- Route the refrigerant piping in the required direction, and bind the drain hose and the electrical connection cord together with fastening tape.
  The drain hose should be at the bottom.

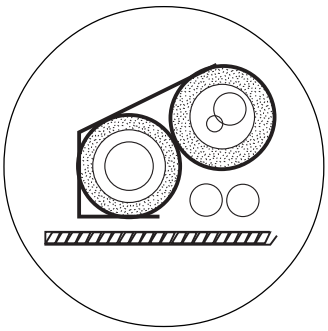



① Indoor unit piping
② Left-hand piping
③ Bind with fastening tape
④ Drain hose

- For left-hand piping, fit the pipes and the wiring into the recess at the back of the unit.

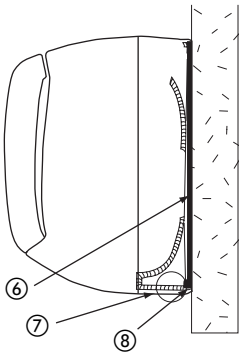



① Indoor unit piping
④ Drain hose
⑤ Connection cord

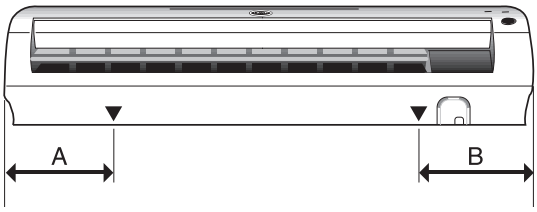


## Installing the indoor unit body to the wall hanging bracket

- Pass the pipes through the wall sleeve and then hook the indoor unit body on top of the wall hanging bracket.
- For left-hand piping, hang the unit on top of the wall hanging bracket and incline the unit using a tool such as a screwdriver set between the middle area of the body and bottom right of the wall hanging bracket.
  Connecting the pipe can be done more easily if the unit is inclined.
- Fix the bottom part of the unit to the wall hanging bracket, by pushing it carefully unit the two bracket hooks fit into the marked places at the base of the unit (a click will be heard).




⑥ Wall hanging bracket
⑦ Hook
⑧ Hole

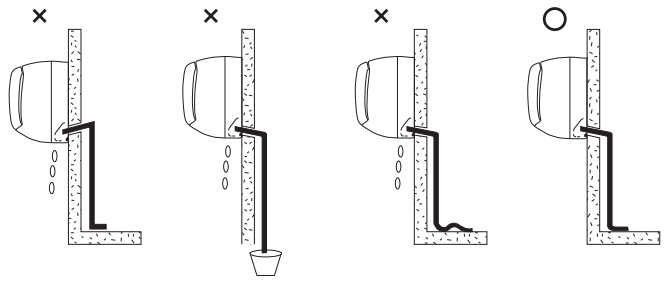



[mm]

| | A | B |
|---|---|---|
| 42PQV | 270 | 195 |

**NOTE:**

- Do not crush or kink the indoor piping. Avoid sharp bends with a bend radius of less than 100 mm.
- Do not bend the same part of the pipe too often.
- Do not remove the flare nut from the indoor unit pipe until the piping is connected.
- The recommended bending of the drain hose is shown.



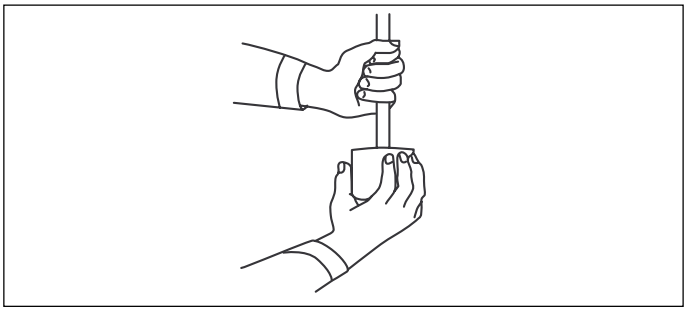
# Refrigerant connections

**Refer to the outdoor unit installation manual for tube sizing, and limitations (slope, length, number of bends allowed, refrigerant charge, etc.).**

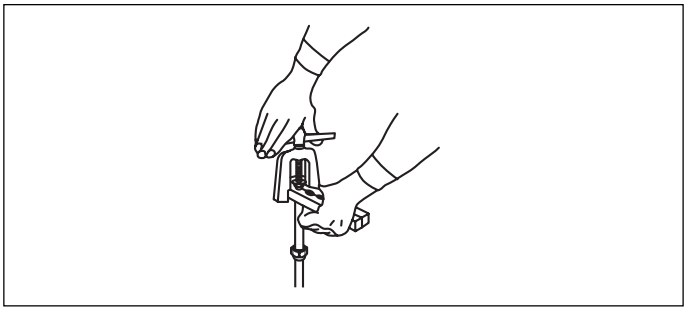
| Model | Tubing diameter | | | |
|---|---|---|---|---|
| | Gas (Suction) | | Liquid (Discharge) | |
| | mm | (inches) | mm | (inches) |
| **42PQV050** | 12.70 | 1/2" | 6.35 | 1/4" |
| **42PQV080** | 15.87 | 5/8" | 9.52 | 3/8" |

For refrigerant tubes use seamless, insulated refrigeration grade tube, (Cu DHP type according to ISO1337), degreased and deoxidized, suitable for operating pressures of at least 4200 kPa and for burst pressure of at least 20700 kPa.
Under no circumstances must sanitary type copper pipe be used.

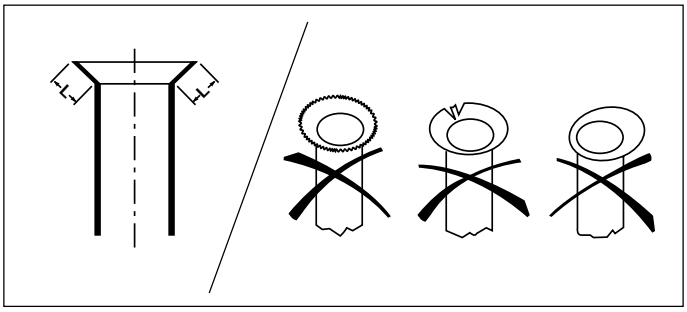
## Flaring the end of the tubing



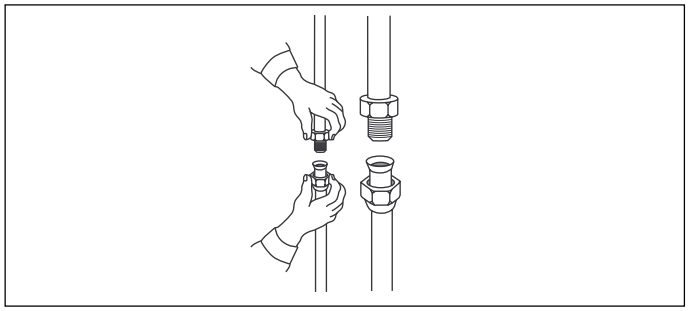
Remove protective caps from the copper tube ends.
Position tube end downward, cut the tube to the required length and remove the burrs with a reamer.



Remove flare nuts from the unit connections and place them on the tube end.
Flare the tube with the flaring tool.



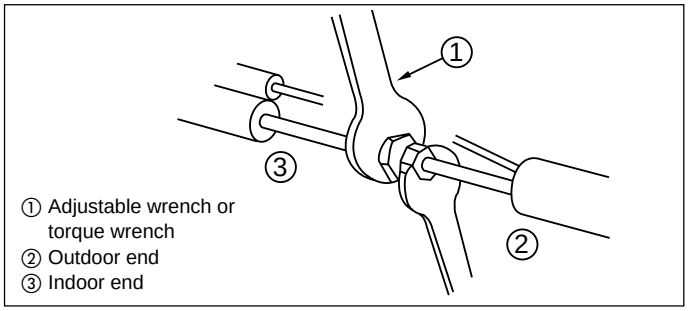
Flare end must not have any burrs or imperfections.
The length of the flared walls must be uniform.



Lubricate the tube end and thread of the flare fitting with anti-freeze oil.
Finger-tighten the fitting several turns, then tighten it fully with two wrenches by applying the tightening torque indicated in the table.

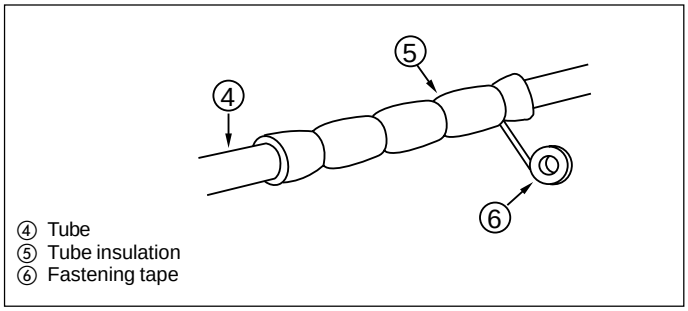
## Connection to the unit

Insufficient tightening torque will cause gas leaks.
Overtightening the fittings will damage the tube flaring and cause gas leaks.



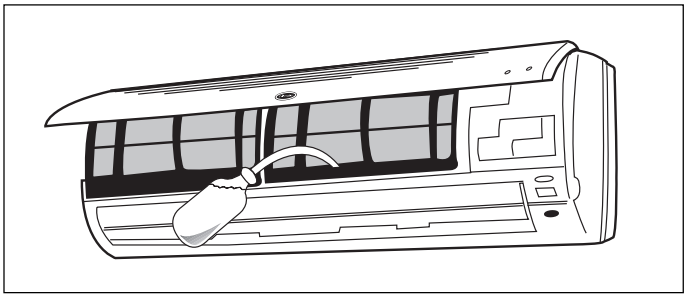

① Adjustable wrench or torque wrench
② Outdoor end
③ Indoor end

| Tubing diameter mm | (inches) | Torque Nm |
|---|---|---|
| 6.35 | (1/4") | 14÷18 |
| 9.52 | (3/8") | 33÷42 |
| 12.70 | (1/2") | 50÷62 |
| 15.87 | (5/8") | 63÷77 |




④ Tube
⑤ Tube insulation
⑥ Fastening tape

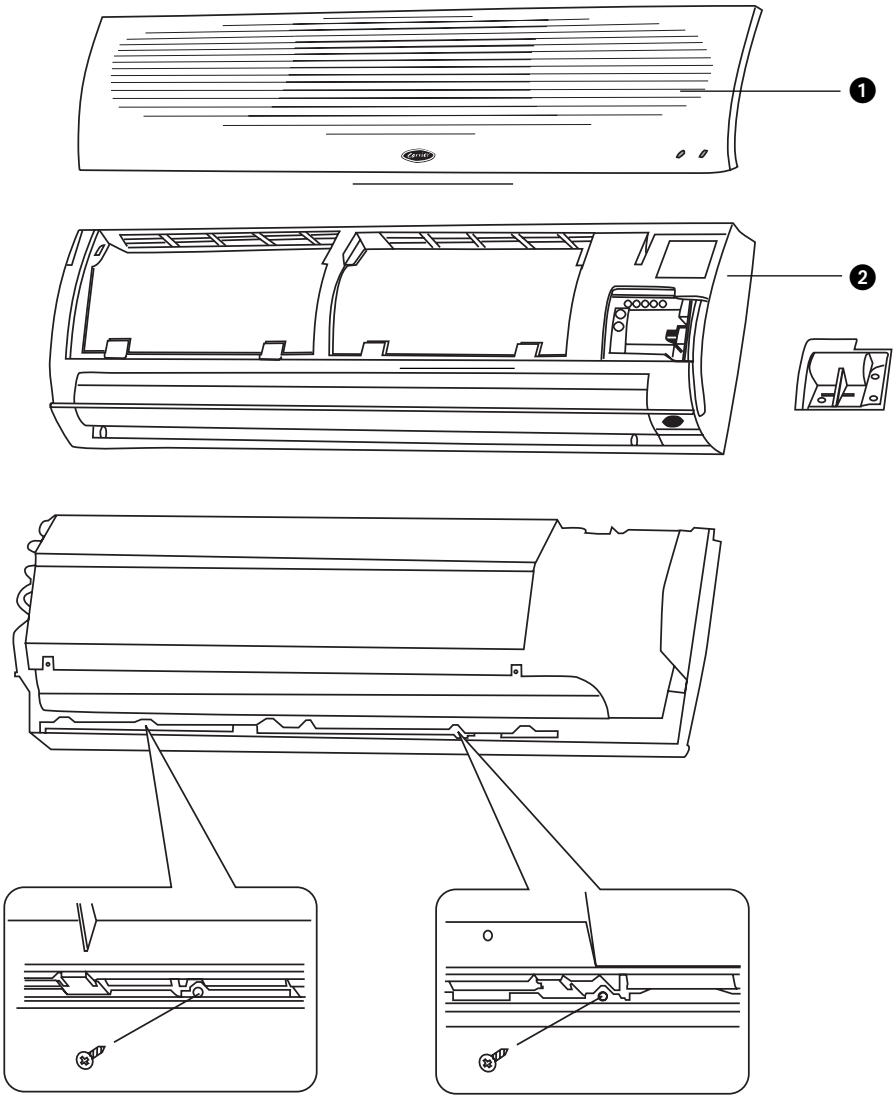
Once all connections have been completed, check for leaks by applying soapy water to them.
Finally wrap connections with anti-condensate insulation and tighten with tape, without exerting great pressure on the insulation.
Repair and cover any possible cracks in the insulation.
Connection pipes and electric cables between indoor and outdoor units must be fixed to the wall with appropriate conduits.



• Next, check the unit drain system by pouring some water into the unit drain pan and ensuring that it flows freely through the drain hose and that there is no leakage from any other part.

## Use of additional screws

After installation, if there is a significant gap between the unit and wall, it can be adjusted by securing the body to the wall hanging bracket using 2 screws.
Screw holes can be only seen after removing the frame grille.




❶ Grille
❷ Front panel

# 42PQV
# Electrical connection

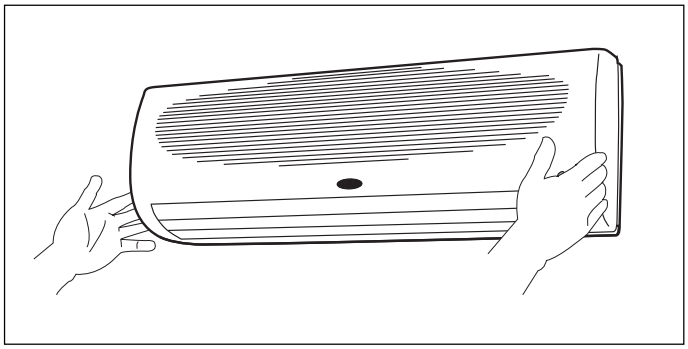
**IMPORTANT:**

- **Make refrigerant connections before electrical connections.** When disconnecting, disconnect electrical connections before refrigerant connections.
- **Make ground connection prior to any other electrical connections.**

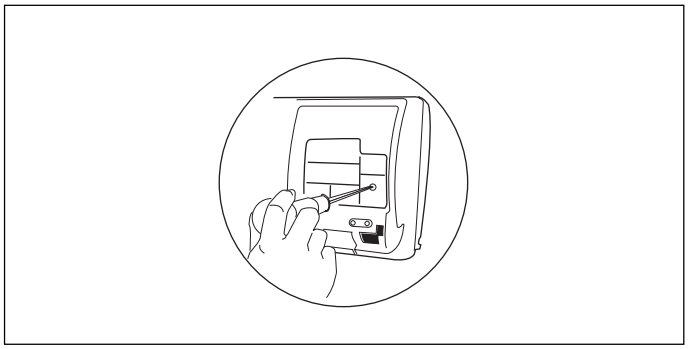
- Make electrical connections between units prior to proceeding to mains supply unit connection.
- Before proceeding with the connection to the mains supply locate live **L** and neutral **N**, then make connections as shown in the wiring diagram.
- Ensure that mains supply connection is made through a switch that disconnects all poles, with contact gap of a least 3 mm.
- The indoor - outdoor unit connecting wires must be A07 RN-F type (or higher), with synthetic rubber insulation with Neoprene coating, according to EN 60335-2-40.
- The mains supply connecting cable must be H07 RN-F type (or higher), with synthetic rubber insulation with neoprene coating, according to EN 60335-2-40.
- Ground connection between indoor and outdoor units is made via the refrigerant pipes.

**Notes:**
**All field electrical connections are the responsibility of the installer.**

## Indoor unit wiring

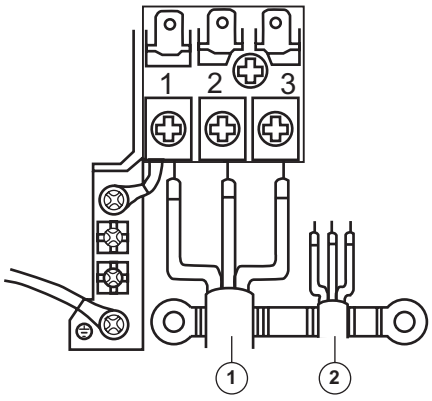


- Lift the front panel up to the top of the unit; in this way the front panel will be separated from the unit.



- Remove the plastic cover of the terminal board.
- Make the electrical connections to the terminal board as per the wiring diagram.
- When the electrical connections are completed, refit the terminal board cover and fix the cables with the special cable holders.
- Fix the front panel to the latch of the frame grille.

## Heat pump (42PQV050, 080)

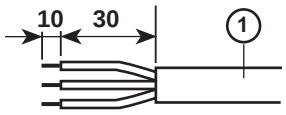



**NB:**
**See outdoor unit installation manual.**

**Terminal box legend**

**1** Live connection indoor/outdoor unit
**2** Neutral connection indoor/outdoor unit
**3** Communication (high voltage)

| | Minimum connection wire size Between indoor and outdoor ($mm^2$) | | |
|---|---|---|---|
| **Model** | 1 | 2 | 3 |
| 42PQV050, 080 | 1.0 | 1.0 | 1.0 |




① Interconnection cable (A07 RN-F)
② Room Controller/CZM connecting cable (Optional - see CRC installation manual)

# Operating test, address selector and fault code

## Operating test

- Perform the operating test after the units have been installed in position and the gas leak test has been completed.
- Check all electrical connections (instructions and wiring diagram).
- Insert the batteries into the remote control and leave it OFF.
- Energise the system, turning the power supply ON.
- Press the ⋀ and buttons of the infrared remote control and hold them pressed for more than 5 seconds.
  The display will be cleared, the time segments will display the icon (Src = service test).

When test mode is selected, the unit operates as described below:
- The green LED and the orange LED blink every 2 seconds.
- The indoor fan operates at low speed.
- The louver operates according to “Auto heat” or “Auto cool” based on operating mode.
- The system works in Cool Mode at fixed compressor frequency for 3 minutes.
- The system stops for 3 minutes.
- The system works in Heat Mode with fixed compressor frequency for 3 minutes or until the indoor coil temperature is greater than 40°C.

During the cool mode and heat mode check the following conditions:
1. Difference between indoor ambient temperature and indoor unit air discharge temperature must be greater than 3°C.
2. Indoor fan must operate at low speed.
3. Louver must be in auto heat or cool louver based on operating mode.
4. No fault code must be signalled by the system.

If one of the above conditions is not positive, please check the correct installation of the system.

- After test has been completed, press button ⏻ on the remote control to leave the test menu.

**Note:**
When 30 minutes have elapsed and no buttons have been pressed, the remote control will automatically exit the test menu and resume its normal operation.

## Address selector

If you are installing two indoor units in the same room and you want them to operate in independent mode, it is necessary to assign each unit its own address so that each unit can operate via its own remote control.

For configuration, proceed as follows:

### Configuration (of the unit)

- Press the M and buttons of the infrared remote control and hold them pressed for more than 5 seconds.
- The display will be cleared, the time segments will display the first configuration item (rAdr = remote address) and the temperature segments will display the default value of this configuration item (Ab = control of both indoor units).
- Press either the ⋀ or ⋁ button to change the default value (Ab) to the new value (A) or (b).
- Press M button repeatedly until “ZONE” is displayed.
- Press either the ⋀ or ⋁ button to change the default value of Zone number (0) to the new value (0÷240).
- Press M button repeatedly until “A St” is displayed.
- Press either the ⋀ or ⋁ button to change the default value of auto restart in last mode (On) to the new value of start in OFF mode(OF).
- **LOOK OUT! Whichever configuration value changed must be transmitted to the indoor unit pressing button each time.**
- Press ⏻ button to leave the configuration menu.

### Configuration (of the remote controller)

- Press the ⋁ and buttons of the infrared remote control and hold them pressed for more than 5 seconds.
- The display will be cleared, the temperature segments will display the first configuration item (CH = remote address) and the time segments will display the default value of this configuration item (Ab = control of both indoor units).
- Press either the ⋀ or ⋁ button to change the default value (Ab) to the new value (A) or (b).
- Press M button repeatedly until “tU” is displayed.
- Press either the ⋀ or ⋁ button to change the default value of temperatures in Degrees Celsius (C) to the new value Degrees Fahrenheit (°F).
- Press M button repeatedly until “Hr” is displayed.
- Press either the ⋀ or ⋁ button to change the default value of Maximum heating set point temperature admitted in Degrees Celsius (32) or Degrees Fahrenheit (90) to the new value Degrees Celsius (17÷32) or Degrees Fahrenheit (63÷90).
- Press M button repeatedly until “Cr” is displayed.
- Press either the ⋀ or ⋁ button to change the default value of minimum cooling set point temperature admitted in Degrees Celsius (17) or Degrees Fahrenheit (63) to the new value Degrees Celsius (17÷32) or Degrees Fahrenheit (63÷90).
- Press M botton repeatedly until “CL” is displayed.
- Press either the ⋀ or ⋁ button to change the default value of Time format as AM/PM (12) to the new value of 24 hours time format (24).
- **LOOK OUT! Whichever configuration value changed must be confirmed pressing button each time.**
- Press ⏻ button to leave the configuration menu.

**Note:**
When 30 seconds have elapsed and no buttons have been pressed, the remote control will automatically exit the configuration menu and the procedure has to be restarted.

## Fault code

The inside unit can detect any system fault and stop it at once.
The failure is recoverable based on the table VI below.
When a diagnostic is active, the green LED (P) and the orange LED (R) blink 0.1 seconds on, 0.1 seconds off and indicate a fault code.
The orange LED (R) indicates the tens digits.
The green LED (P) indicates the unit digits.
Two seconds elapse between the orange LED and the green LED lighting.
The sequence ends with both LEDs off for 4 seconds.

Example:
Fault code 12

- The orange LED blinks (it indicates the tens digits).
- Both LEDS are off for 2 seconds.
- The green LED blinks twice with a 0,5 seconds frequency.
- Both LEDS are off for 4 seconds.

The fault sequence described above is repeated until the fault has been repaired.
If the fault code is lower than 10, the orange LED (R) is not blinking.

# Fault code and guide for the owner

## Table VI: Fault code

| Code | Description |
|---|---|
| 2 | Condensate Pump Failure or water drain Failure |
| 3 | Indoor unit Room Air sensor fault |
| 4 | Indoor unit Tc Coil sensor fault |
| 10 | Indoor unit software fault (EEProm Corrupt) |
| 12 | Indoor unit software fault (Address / Zone Corrupt) |
| 14 | Loss of Signal From CDU |
| 15 | Indoor unit Tcj Coil sensor fault |
| 18 | Outdoor unit control box fault (G-Tr short circuit protection) |
| 20 | Position Detection Circuit Error |
| 21 | Outdoor unit Current Sensor fault |
| 22 | Outdoor unit Heat Exchange Sensor fault |
| 23 | Outdoor unit Discharge Temperature Sensor fault |
| 24 | Outdoor unit Fan fault |
| 26 | Other Outdoor unit fault |
| 27 | Outdoor unit Compressor Lock |
| 28 | Outdoor unit Discharge Temperature fault |
| 29 | Outdoor unit Compressor Breakdown |
| 31 | Outdoor unit High Temperature/Pressure Release |

For the fault codes of the outdoor unit please refer to Installation manual of 38VYX not available for the size 050.
In case of malfunction, record the fault code, turn the system off, disconnect the mains power supply and contact a qualified service engineer.

## Guide for the owner

When installation and tests are completed explain the Operation and Maintenance Manual to the owner, with particular attention to the main operating modes of the air conditioner, such as:

- Turning the unit on and off.
- Functions of the remote control.
- Removal and cleaning of the air filters.

Leave the two installation manuals for the indoor and outdoor units with the owner for future use during maintenance operations or for any other needs.

**Via R. Sanzio, 9 - 20058 Villasanta (MI) Italy - Tel. 039/3636.1**

The manufacturer reserves the right to change any product specifications without notice.

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